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NON-ACLS NURSES' SUPPORTING ROLES DURING CARDIAC ARREST: WHAT IS THE NEED FOR EDUCATION?

by

Paula Lynn Pengilly

B.S.N., Mount Marty College, 1982

A thesis submitted to the

Faculty of the Graduate School of the

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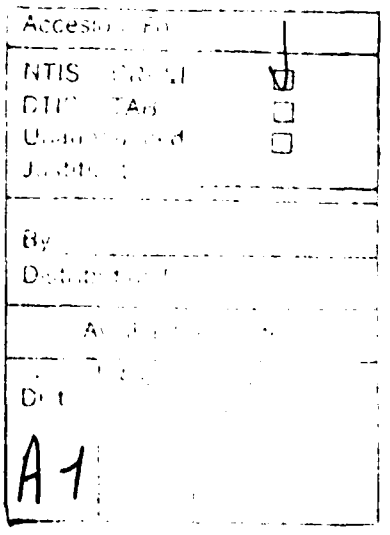

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Non-ACLS Nurses' Supporting Roles During Cardiac Arrest: What is the Need for Education?

Thesis directed by Assistant Professor Ginette A. Pepper.

Literature regarding non-ACLS nurse education in cardiac resuscitation roles is limited. The purpose of this descriptive study was to identify the extent and correlates of educational needs of non-ACLS nurses for performance during a cardiopulmonary arrest by surveying 200 nurses assigned to 17 Air Force hospitals. A 36-item survey was developed reflecting Fitts' three phases of skill learning (cognition, fixation, and automation) and questions utilized in previous studies. A 65% return rate was achieved.

Twenty-four percent of the nurses had never before participated in an actual arrest and 18% had never before participated in a mock arrest. The nursing roles with greatest need for simulation education were: assisting with intubation (84%), operating the defibrillator (83%), preparing emergency medications and IV solutions (80%), and operating the cardiac monitor (73%). Forty-five percent desired more hands-on practice in Basic Life Support.

Eighty percent indicated role simulation education should be required whereas 15% said it should be offered, but not required. Fifty-four percent stated they need this education quarterly and 36%, biannually.

All but one nurse indicated they would experience anxiety if asked to perform in a resuscitation. This anxiety, however, was not related to whether the nurses would manifest the anxiety-related behaviors of panicking, freezing, or retreating. Correlations indicated that the more years of nursing experience, the more mock and actual arrests participated in, and ICU experience all decrease the anticipated anxiety and education need associated with cardiac resuscitation participation ($p < 0.001$ to 0.006).

The form and content of this abstract are approved.

Signed Jeanette A Pepper
Faculty member in charge of thesis

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CHAPTER I

INTRODUCTION

Statement of the Problem

Early initiation of cardiopulmonary resuscitation (CPR) before the resuscitation team arrives, plus the cooperative teamwork of personnel during the resuscitation, increases the client's chance for survival (Eisenberg, Bergner, and Hallstrom, 1979). As in civilian hospitals, nurses in Air Force hospitals may be required to participate in a cardiopulmonary arrest situation either as resuscitation team members or as backup/support personnel. In either role they must function effectively in an organized and timely manner and be able to cope in the high tension atmosphere.

Two categories of nurses participate in resuscitation: those with advanced cardiac life support (ACLS) training and those without ACLS training. ACLS personnel are certified personnel who have been specifically trained through an intensive American Heart Association program to assume specified

roles in a cardiopulmonary resuscitation. Trained to assume these roles, they can anticipate the needs of other team members. The role of nurses without ACLS training is to assist the resuscitation effort by acting as a support team member under the direction of a physician or ACLS team leader.

In 1979, Eisenberg et al. investigated the relationship between time and successful resuscitation and demonstrated two time components critical to patient survival: one was the time from collapse to initiation of CPR, and the second was time from collapse to advanced life support. The faster the care was delivered, the greater the chance of survival for the patient. This study supports the need for nurses to be trained to respond promptly and efficiently in a cardiac arrest, since it is the nurse who is many times the first responder in the in-hospital arrest.

No documentation was found regarding non-ACLS nurses' educational needs in their roles supporting cardiopulmonary arrest management in Air Force hospitals today. The purpose of this study is to identify the extent and correlates of educational needs of non-ACLS nurses to perform during a cardiopulmonary arrest by surveying 200 nurses assigned to 17 Air Force hospitals.

Research Questions

Based on the review of the literature and the purpose of the study, the following research questions related to non-ACLS nurses in Air Force hospitals regarding cardiopulmonary arrest were formulated.

1. What types of educational and clinical experiences have nurses had related to various roles performed in cardiopulmonary resuscitation?

2. What are their perceived educational needs?

3. What is the perceived importance of simulated role education and how frequently would it be required to maintain adequate performance?

4. What are their perceived anxiety levels if they were to perform in an actual cardiopulmonary resuscitation today?

5. Is the level of anxiety associated with intensive care unit (ICU) experience, years of nursing experience, previous cardiopulmonary resuscitation role education, actual cardiopulmonary resuscitation experience, or mock arrest experience?

6. Is perceived education need associated with ICU experience, years of nursing experience, previous cardiopulmonary resuscitation role education, actual

cardiopulmonary resuscitation experience, or mock arrest experience?

Definition of Terms

Educational needs: The knowledge required to support the resuscitation team in a cardiopulmonary arrest as measured by the Self-Assessment Survey.

Anxiety: The pressure and uneasiness of mind in regards to performing in a cardiopulmonary resuscitation and includes anxiety-related behaviors such as panicking, freezing, and retreating as measured by the Self-Assessment Survey.

Non-ACLS nurse: A current state licensed registered nurse who is not certified in Advanced Cardiac Life Support and is currently employed as a nurse in a United States Air Force hospital.

Cardiopulmonary resuscitation: Cardiac or cardiopulmonary resuscitation is "the restoration to life or consciousness of one apparently dead; it includes such measures as artificial respiration and cardiac massage" (Friel, 1974, p. 1348). Advanced cardiac life support is also included.

Educational experience: Includes both classroom experience (lectures, slides, etc. other than hands-on

experience) and simulated experiences (performed the role as part of simulated role education in a staged arrest; hands-on experience) as measured by the Self-Assessment Survey (SAS).

Clinical experience: In-hospital experience from hands-on performance in an actual cardiopulmonary resuscitation event as measured by the SAS.

Perceived: To be aware of or to sense, such as to sense own learning needs (Guralnik, 1974).

Simulated role education: de Tornyay and Thompson (1987) define simulation as:

> A realistic representation (model) of the structure or dynamics of a real thing or process with which the participant, as an active part of the experience, interacts with persons or things in the environment, applies previously learned knowledge to make responses (decisions and actions) to deal with a problem or situation, and receives feedback about responses without having to be concerned about real-life consequences (p. 26).

The "real thing" is a cardiopulmonary resuscitation where nurses perform roles in a team effort. This method of education allows for role criteria to be taught step-by-step prior to the realistic pace used in mock arrests.

Mock arrest: Mishkin (1982) defined a mock code or mock arrest as a simulated cardiopulmonary arrest

situation conducted at a realistic pace and used to practice in concert all nursing roles required to support the resuscitation effort. Mock codes are a type of simulated role education, with feedback and critique withheld until the entire sequence is complete.

Conceptual Framework

Two areas of concern related to non-ACLS nurses during a cardiopulmonary arrest are (a) the management of the first few minutes until the resuscitation team (also known as COR, Code Blue, cardiac arrest, or ACLS team) arrives and (b) how the support personnel perform in assisting the resuscitation team. If there is no designated resuscitation team within the institution, the above concerns are similar and additionally focus on developing teamwork within health team personnel present at the cardiopulmonary arrest scene.

Teamwork and Chaos

Kaye, Linhares, and Breault (1981) used the concept chaos to describe a cardiopulmonary arrest situation that lacked organized teamwork. This chaos is often related to the anxiety each participating health care worker experiences during such an event.

Even with a designated resuscitation team, teamwork is needed both among its members and with the support personnel. "Support personnel who anticipate the needs of the ACLS team could potentially lead to more rapid therapeutic responses and further reduce the chaos of resuscitation" (Owen, LaBresh, and Cole, 1986, p. 283).

Teamwork is acquired through knowledge of the resuscitation roles through education and simulated role performance. The knowledge needed by nurses to perform effectively center around supporting roles. Supporting roles by non-ACLS backup nurses who anticipate the needs of resuscitation team are (but are not limited to) to assist with intubation, prepare intravenous infusions, manage the crash cart, procure drugs and equipment, help operate the monitor and defibrillator, and record clinical events (Owen et al., 1986; Matson & Spears, 1985; Monico, 1983; Mishkin, Holloran, & Burge, 1982). Being able to perform these supporting roles during a cardiopulmonary arrest requires frequent practice for smooth and timely performance, drawing upon previously learned skills. For example, the nurse may know the principles involved in mixing a drug for intravenous administration, but in

a stressful situation such as an arrest, may forget the correct dosage or with what solution the drug is compatible.

Phases of Skill Learning

P. M. Fitts (1965) proposed three phases in skill learning: the cognitive phase, the fixation phase, and the autonomous phase. During the cognitive phase the learner receives and must understand the sequence of tasks entailed in the entire skill. The fixation phase involves practicing the skill sequence until it is known by the learner. The amount of time needed for practice varies with the task complexity and the learner's past experiences. Feedback during the practice sessions is important to correct deficiencies. The autonomous phase sees the learner as "gaining increasing comfort and ease in performing the task and decreasing stress and anxiety" (Whitman Grahm, Gleit, and Boyd, 1986, p. 59). Fitts states it may take years to reach this phase. Through the use of skill training, the chaos noted by Kaye et al. (1981) could be lessened and possibly abolished.

The first or cognitive phase would parallel the information disseminated during the classroom portion of a simulated role education class. It would reflect

all required role behaviors and criteria from the time the patient is found until the resuscitation effort has been terminated. Simulations, mock codes, and even actual arrests would equal the practice sessions of the fixation phase. The third or automation phase is attainable, but the nurse must remain flexible to changes that may occur in the skill sequence, such as a drug substitution for a specific dysrhythmia. The nurse must keep current through periodic skill practices.

Mock codes without prior simulated role education can be confusing to the nurse and do not allow maximized potential for learning. The nurse needs the theory and role behavior criteria taught plus hands-on practice before being expected to perform through demonstration, the mock code. Simulated role education allows learners to choose to spend as much time on a particular role as needed in order for the learner to feel confident in his performance. Hands-on learning is supported by adult learning theory (Knowles, 1978) wherein learners are actively participating in a learning situation that could be an actual event they may need to perform in at some point in their career.

This study is designed to identify whether nurses perceive an actual need for simulated role education and to ascertain whether knowledge about cardiac resuscitation roles lowers anxiety. It will assume that nurses can judge the effectiveness of a hypothetical simulation in reducing their own anxiety about an event, such as a cardiopulmonary arrest.

Implications for Nursing

The implications for nursing, military or civilian, are considerable. As state licensed registered nurses, ACLS certified or not, they are held responsible and accountable for their actions or lack thereof in an arrest (Owen et al., 1986; Matson & Spears, 1985; Monico, 1983; & Mishkin et al., 1982). Nursing staff educators must identify actual and potential learning needs and provide education as required to improve quality patient care.

Self-assessment surveys have been conducted in civilian hospitals and learning needs were identified. Once known, the needs were organized into remedial classes for the nurses with general improvement in mock cardiac arrests (Mishkin et al., 1982, & Sullivan & Guyatt, 1986).

CHAPTER II

REVIEW OF RELATED LITERATURE

Prior research studies completed in civilian hospitals have highlighted several concepts relevant to needs of nurses involved in cardiopulmonary resuscitation. These concepts were educational needs, ability to perform, stress and anxiety, defining cardiac resuscitation support roles, and the use of role rehearsals and mock codes in educating staff nurses. Related research regarding the formation of advanced life support teams was also reviewed.

Educational Needs and Performance

Mishkin et al. (1982) randomly surveyed 47 new graduates (NGs) and 50 experienced nurses (ENs) at a 500 bed community hospital. There was no mention whether these nurses were ACLS prepared or whether they had previous ICU/CCU experience. The survey tool established previous learning and actual experience in both real and simulated cardiac arrests. The study's rationale was that many new graduates are hired yearly and there is a critical need for the new

graduate to develop skills necessary to assist in cardiac resuscitation.

Of the ENs, 50% had never initiated CPR; 40% had never prepared emergency drugs; 30% had never recorded clinical events; and 44% had never participated in mock codes. No information was reported on the NGs. When asked whether they thought they could function effectively in an actual arrest, only 8% of the NGs and 48% of the ENs responded positively. Thirty-four percent of the ENs and 60% of the NGs stated they were unsure of their ability. Combined with the negative responses it indicated 44% (N=22) of ENs and a 92% (N=43) of NGs who would feel ineffective in a cardiac arrest situation. Questioned about simulated role rehearsal, 80% of ENs and 91% of the NGs indicated it would enhance their performance in an actual cardiac arrest.

The results of the Mishkin et al. study could not be generalized to other hospital nurses because the sample was confined to one facility. It does, however, highlight the potential educational needs for nurses in other institutions and the importance of experience in decreasing discomfort in CPR situations. The authors recommended the use of mock codes and role rehearsals

to increase efficiency, improve confidence, and decrease anxiety in actual emergencies.

Educational Needs and Defining Supporting Roles

Owen et al. (1986) surveyed and provided training in emergency cardiac care beyond BLS to more than 100 general staff nurses from various clinical specialties from two Rhode Island hospitals. The method of sampling was not reported. Twenty-six percent had assisted with an arrest during the previous three months while 24% had never before participated. The training program defined four cardiac arrest support team (CAST) roles in assisting the resuscitation team (basic life support, airway adjuncts, team leader, and medications/recorder). The program consisted of a self-assessment survey, pretest, actual role training, and a post test. An improvement of 37% between the mean pretest (58%) and mean post test (91%) supported the need for a standardized effort to define specific support roles and provide education to implement them. The self-assessment survey further revealed areas of greatest educational needs as emergency medications and operation of the monitor and defibrillator. Overall,

it was recognized that training beyond basic life support (BLS) was needed.

The attainability of Owen et al.'s goal, to reduce the "chaos" (Kaye et al., 1981) of in-hospital resuscitation through role rehearsal so that each member can anticipate needs of resuscitation team personnel, has yet to be studied systematically. The authors believe that mock code drills using these roles would enhance knowledge and skill retention. Enhancing knowledge and skills could potentially decrease anxiety felt by the resuscitation nurses.

Anxiety

Mock codes are also used to teach strategies for coping with common reactions to crises such as panicking, freezing, and running away (Beyerman, 1986). Panicking behavior may be described as hands shake so as unable to drawup and/or deliver medications rapidly. Freezing on the spot is noted as unable to move before and/or after calling for help. Avoiding the resuscitation scene by finding things to do in another room is a retreating behavior. Working in a mock code, members of both the resuscitation team and support team can identify and correct weaknesses in knowledge, technique and speed in an atmosphere of tension and

pressure found in a real arrest without being concerned about real-life consequences (Woodberry and Hanric, 1981).

Related Research

Sullivan and Guyatt (1986) studied the performance of resuscitation members in 47 simulated cardiac arrests in a 600 bed Canadian academic hospital. Even though more than half of the housestaff had successfully completed the American Heart Association's ACLS training program, many unsuspected deficiencies were identified. Common errors included nurses who forgot to give supplementary oxygen while awaiting the arrival of the arrest team, lack of pediatric protocols, and confusion over various models of defibrillators. Results of the study led to inservice education for the nurses, equipment standardization and education, plus specific protocols for special areas (pediatrics, hemodialysis, and obstetric units).

Summary

In summary, it has been shown that nurses do indeed have perceived educational needs that must be met in order for them to perform in a cardiopulmonary resuscitation. These educational needs were recognized

through self-assessment surveys, pretests, and mock code drills. Anxiety, though not studied directly, has been related to poor performance and inadequate educational preparation. The results of previous studies revealed that the faster and the more efficiently the nurses responded in a cardiac arrest, either as initiators of CPR or as cardiopulmonary arrest team members or supporters, helps determine the outcome for the patient.

CHAPTER III

METHODOLOGY

Basic Design

A descriptive survey design was used to conduct this study. Descriptive surveys permit the collection of data and sample characteristics to identify problems with current practice (Burns & Grove, 1987). This method allowed for sampling of a population to get representative results. The survey identified educational needs and previous clinical and educational experiences and addressed whether these previous experiences and education would decrease the anxiety associated with cardiac resuscitation. It measured the respondents' perceived anxiety levels and three anxiety-related behavior levels in having to perform as part of the resuscitation process and determined whether nurses desired simulated role education and how frequently.

Major Variables

Several variables were studied through the use of the survey. Experience variables included whether nurses had ICU experience, number of years of nursing experience, cardiac arrest education (classroom didactic, simulations, and mock codes), and actual arrests the nurses had participated in. Two sets of variables addressed nurses' perception of factors related to cardiac arrests. One set was the type and frequency and importance of cardiac arrest role education desired in the future. The other included general anxiety and the likelihood of three anxiety-related behaviors. For correlational research questions, the experience variables were conceptualized as the independent variables which impacted the dependent variables of education need and anxiety.

Sampling

The target population was military staff nurses working in Air Force hospitals. Criteria for inclusion were (a) the nurses could not have ACLS certification and (b) duties which included patient care and/or responsibilities for responding to and assisting with cardiopulmonary arrests. A sample of 200 nurses with

the Air Force specialty code 9756 (active duty general staff nurse) were selected from 17 hospitals located within the continental U.S. Hospitals were sampled purposively from three divisions determined by their bed size (Table 1). Division one received 90 surveys;

Table 1

Survey Distribution to Hospitals

Division	I	II	III
Hospital size	<100	101-300	>300
No. of hospitals per division	53	8	3
No. of hospitals selected	9	5	3
Surveys distributed per hospital	10	10	20
Total surveys distributed	90	50	60

Note. Hospital size denotes number of beds. Data obtained in November 1987.

division two, 50 surveys; and division three, 60 surveys. This sampling plan allowed representation of nurses from the smaller facilities since approximately one-third of the nurses are assigned to hospitals less than 100 beds. Hospital bed sizes and number of 9756 nurses employed at each hospital were obtained in November 1987.

Each survey packet contained a cover letter to the participant plus a 36 question Self-Assessment Survey. A cover letter to the Chief nurse (Appendix A), plus the surveys with the participant cover letter obtaining consent (Appendix B) were mailed to hospital's Chief nurse and he/she or a designee administered, collected, and mailed back the completed surveys. The Chief nurse letter explained the study purpose, described criteria of needed respondents, and explained collection and mailing procedures.

To facilitate tabulation, each hospital division was identified by a different colored survey form (white-less than 100 beds, blue-101 to 300 beds, and gold-greater than 300 beds). All surveys had black lettering.

Instrument

Self-Assessment Survey

A 36 item Self-Assessment Survey (Appendix C) was developed to reflect concepts from the conceptual framework as well as from previous studies. Survey development was patterned to test Fitts' skill learning phases and questions similar to those utilized in studies by Mishkin et al. (1982) and Owen et al. (1986). The survey also was used to investigate anxiety and how it is related to chaos.

The Self-Assessment Survey (SAS) was divided into four sections: general information, cardiac arrest experience, educational needs, and perceptions of performance. The first two sections included information on past experience. The general information section contained seven items regarding clinical experience and demographic characteristics. Cardiac arrest education (15 items) pertained to the respondents' education and clinical experience in ten nursing resuscitation roles. It also requested the number of mock codes and actual arrests participated in plus the number of months since they last participated in a mock or actual arrest.

The second two sections dealt with educational needs and anxiety. The educational needs section (10 items) requested that the nurses indicate what additional classroom or simulation education was needed to adequately perform eight nursing resuscitation roles. Nurses were also asked to choose how important role simulation education is to non-ACLS nurses and how frequently they desire this type of education.

The fourth section consisted of four items measuring the amount of anxiety and the likelihood of anxiety-related behaviors (panicking, freezing on the spot, and retreating) if the nurses were asked to participate in a resuscitation at the time of the survey. These items were measured using a visual analogue scale consisting of a 100 mm line anchored by words representing extremes on each end of the line. Respondents were asked to place a horizontal mark on the line indicating the amount of anxiety (no anxiety to extreme anxiety) or the likelihood of each anxiety-related behavior (unlikely to likely).

Reliability and Validity

Content validity. Using four content specialists (experienced educators) as the panel of experts,

content validity was determined and computed using the formula average cited by Waltz, Strickland, and Lenz (1984, p. 196-198). The content validity index for the general information, cardiac arrest experience, educational needs, and perceptions of performance sections were 0.96, 0.98, 1.0, and 0.88 respectively.

Pilot study. The pilot study consisted of ten voluntary participants (UCHSC graduate nursing students) with an 80% (N=8) return rate. A test-retest method was utilized (to determine reliability) with the retest occurring five to seven days after initial testing. Percent agreement between tests was utilized for general information (75% to 100%), cardiac arrest experience (50% to 100%), and educational needs (62.5% to 100%).

In section four, anxiety and anxiety-related behavior, the percentage of retest scores within 20% of the initial test varied from 12.5% to 75%. An investigation of the pilot study subjects' retest results was completed to explain why perception scores on the retest varied greater than 20% from the initial test. Each subject was told of her results and then asked what may have occurred that retest results varied so much. Explanations included, "I had more time to

think about it," "I was hurrying to get done and picked the same general area," "I read it wrong the first time," and "I had my clinical evaluation inbetween, and I think I answered how I should as a role model." In general, the subjects stated their initial measurement was a more accurate reflection of their anxiety levels.

In order to determine if the raw measurement scores were accurately measured, a second measurement of each score by a different rater was done. Interrater reliability was 100%.

Data Collection

The Self-Assessment Survey was used to collect the data. A survey was used because it allowed contact with a larger number of respondents over a vast area (the continental United States) at a lower cost. The survey was easy to tabulate and also allows use in future studies with minimal modifications.

Four months prior to distribution, approval to survey USAF nurses was obtained from the Air Force Institute of Technology at Wright-Patterson AFB, Ohio (included Human Subjects approval) (Appendix D). Initial approval from UCHSC Human Subject Committee was obtained first (Appendix E). Two weeks prior to

distribution to the hospitals, the Chief nurses were contacted by phone personally or left messages regarding the survey (unable to reach three hospitals) to facilitate survey distribution and return, and to answer any questions. After approval from the Chief nurses the surveys, cover letters, plus a large stamped addressed return envelope were mailed to the Chief nurses who administered or solicited a designee to administer the surveys. Follow-up postcards were sent seven to ten days before the survey deadline to facilitate the collection process and prompt return of surveys.

The mail route was used because travel to each hospital would have been too costly. Use of the survey provided anonymity and confidentiality for each participant who was only identified by a survey number on the top right hand corner of the front page. Completion of the survey indicated the respondent's consent to participate in the study as which was stated in the cover letter. It was assumed each respondent met participant criteria outlined in the Chief nurse letter and answered all questions truthfully.

Data Analysis

Data analysis was completed using summary statistics (percents, means, frequencies, and standard deviations) and bivariate data analysis utilizing Pearson's Product-Moment Correlation Coefficient and point biserial correlations. The SPSS/PC+ V2.0 (Statistical Packages for the Social Sciences version for personal computers) computer program was used for all statistical work.

A second rater was used in section four of the SAS to measure raw scores. Twenty percent of the returned surveys were randomly selected by the second rater for this process. Data from each survey entered into the SPSS program were also double checked for accuracy using a second coder.

Computed Scores

Cardiac Arrest Education. Cardiac arrest education was a summated score with two points added for each of the cardiopulmonary resuscitation roles in which the nurse had received classroom education, and two for each role in which the nurse had received simulated education. One point was scored if no

experience was marked. The possible score range was 20 (lowest) to 40 (highest).

Education Need Score. Education Need Score was a summated score with two points added for each of the resuscitation roles in which the nurse perceived he/she needed more classroom education, and two for each role in which he/she needed more role simulation education. One point was scored if no education was needed. The possible score range was 16 (lowest) to 32 (highest).

Anxiety Score. The Anxiety Score was determined by summing each of the four measurements of anxiety and anxiety-related behaviors and dividing the total by four. The possible range was 0 mm (lowest) to 100 mm (highest).

CHAPTER IV

RESULTS

After a brief discription of hospitals and participants contacted, the results of the Self-Assessment Survey will be discussed. First, characteristics of the final sample will be reported. Second to be presented is cardiac arrest experience. Third to be decribed will be the perceived educational needs and fourth, anxiety and anxiety-related behaviors. The last section describes the associations of Anxiety Scores and Education Need Scores with previous experiences and education.

Description of the Final Sample

Two hundred surveys were distributed to seventeen USAF hospitals. No facility refused yet one hospital later returned its ten questionnaires indicating all its nurses were ACLS certified.

Out of 200 surveys, 131 were returned. One was rejected because the respondent indicated he was ACLS certified. The final sample, therefore, consisted of 130 surveys for a 65% return rate. The return rate for

each hospital division, I, II, and III was 64% (N=58), 74% (N=37), and 57% (N=34) respectively. These divisions as described in methodology were used to distribute the surveys more evenly among the nurses since approximately one-third are assigned to hospitals under 100 beds.

The general characteristics and clinical experiences of the final sample are reported in Table 2. They include the presence of a resuscitation team, level of education, unit and position employed, shift worked, years of nursing experience, and gender. The mean number of simulated arrests and actual arrests plus the mean number of months since the nurse last participated in a simulated arrest and/or actual arrest are also presented.

Resuscitation team. Just over 60% (N=76) of the respondents stated their hospital had a specific resuscitation team that responded to all in-hospital resuscitation efforts. Surprisingly, there was discrepancy within several hospitals where some nurses reported there was such a team while one or more other respondents from the same hospital indicated there was no such team.

Table 2

Characteristics of Final Sample*

	N	%	$\bar{X}$
Resuscitation team			
yes	76	60.3	
no	50	39.7	
Education level			
diploma	5	3.9	
associate degree	1	0.8	
baccalaureate	109	85.2	
masters degree or higher	13	10.2	
Unit employed			
medical or surgical	73	56.2	
pediatrics	5	3.8	
OB/GYN/Nursery	36	27.7	
other	16	12.3	
Position			
staff nurse	93	71.5	
assistant charge/charge	33	25.4	
assistant supervisor/supervisor	1	0.8	
other	3	2.3	
Shift employed			
day	19	14.6	
evening	1	0.8	
night	4	3.1	
day-night	25	19.2	
day-evening	11	8.5	
evening-night	2	1.5	
day-evening-night	68	52.5	
Gender			
female	110	86.6	
male	17	13.4	
ICU experience			
yes	27	21.1	
no	103	78.9	
Years of nursing experience			6.9
Number of simulated arrests			5.9
Months since last simulated arrest			7.3
Number of actual arrests			7.6
Months since last actual arrest			12.1

*Missing data < 6% of sample on any one item.

Level of education. One hundred nine respondents (85.2%) had a baccalaureate level of education. Thirteen (10.2%) had a masters degree or higher. Diploma and associate degree nurses accounted for only 3.9% (N=5) and 0.8% (N=1) of the sample respectively.

Unit employed. Medical and surgical nurses accounted for 56.2% (N=73) of the sample. OB/GYN/Nursery nurses comprised the second largest unit responding with 27.7% (N=36). Pediatric nurses comprised only 3.8% (N=5) of the sample and 12.3% (N=16) of the nurses reported working in the other category.

Position employed. Approximately 72% (N=93) were general staff nurses. Twenty-five percent (N=33) held either assistant charge or charge nurse positions. Only one nurse held an assistant supervisor or supervisor position and three (2.3%) indicated the other category.

Shift worked. Over 50% (N=68) of the sample reported rotating through all three shifts (days, evenings, and nights). Day-night shifts consisted of 19.2% (N=25) closely followed by 14.6% (N=19) in the day shift position. Day-evening, night, and evening

shifts were 8.5% (N=11), 3.1% (N=4), and 0.8% (N=1) respectively.

Years of nursing experience. The mean number of years of nursing experience was 6.9 years. Experience reported ranged from 1 to 38 years. The median was four years and the mode was two years at 20% (N=26) of the sample. Years of experience were tabulated by rounding to the nearest whole year. Less than one year experience was rounded up to one year experience (N=16). Less than six months, after the first year, was rounded down, whereas greater than or equal to six months experience was rounded up to the next whole year of experience.

Gender. One hundred twenty-seven respondents reported their gender. Females consisted of 86.6% (N=110) of the sample whereas males consisted of 13.4% (N=17).

Cardiac Arrest Experience

Cardiac arrest experience included both educational and clinical experiences associated with roles nurses perform in a cardiopulmonary resuscitation event. Educational experiences (Table 3) were either

Table 3

Cardiac Arrest Experience*

	Percent with Experience		
Role	Classroom	Simulation	Actual
Initiate CPR	94.2	88.0	51.6
Medication nurse	73.2	50.0	51.6
Record critical events	68.6	58.3	67.2
Prepare defibrillator	72.1	71.0	21.6
Prepare cardiac monitor	71.5	68.9	34.1
Prepare intubation equipment	69.7	59.0	28.2
Place IV line	90.2	78.2	59.2
Assist with CPR	95.0	88.5	54.4
Take B/P and HR	94.1	81.7	64.8
Observer	76.3	78.2	82.4

*Missing data < 10% of sample on any one item.

classroom or simulation programs as defined earlier. Percent of actual cardiac arrest experience in nurses'roles is also located in Table 3. ICU experience, the mean number of simulated arrests (mock codes) and actual arrests they had participated in, andthe mean number of months since the last mock code or actual arrest they participated in are reported in Table 2.

Educational experience. Ten nursing roles were identified as roles non-ACLS nurses could perform when assisting in a resuscitation effort. These roles are listed in Table 3 along with the percent of nurses who have performed these roles in simulated role education and/or actual arrests plus the percent of nurses who had classroom education pertaining to these roles. Classroom experience ranged from 68.6% in recording critical events to 94.2% in initiating CPR. Simulation experience ranged from 50% performing as the medication nurse to 88.5% assisting with CPR (as opposed to initiating CPR, 88%).

Clinical experience. Actual cardiac arrest experience showed a greater than 51% performance in all roles except preparing the cardiac monitor, preparing

intubation equipment, and preparing the defibrillator which reported 34.1%, 28.2%, and 21.6% respectively. Observing reported the highest percent at 82.4% followed by recording critical events (67.2%), taking heart rates and blood pressures (64.8%), and placing an IV line (59.2%).

Twenty-seven (21.1%) reported ICU/CCU experience. (Previous or current experience was not differentiated.) The mean number of mock arrests participated in was 5.9 arrests (median=3.0) with the mean number of months since last mock arrest participated in at 7.3 months. Twenty-three (18.4%) reported they have never participated in a mock code.

The mean number of actual arrests participated in was 7.6 arrests (median=3.0) with the mean number of months since last actual arrest participated in at 12.1 months. Twenty-nine nurses (23.6%) reported they have never participated in an actual cardiopulmonary resuscitation event.

Perceived Educational Needs

Perceived educational needs were reported as percent of nurses desiring either classroom or role simulation education or both in eight designated

nursing roles involved in cardiopulmonary resuscitation (Table 4). Respondents were then asked how important role education was to maintain an adequate performance level (Table 5.1) and how frequently they desired this type of education (Table 5.2).

Educational need. Classroom experience was desired most for the following five roles, in descending order: assisting with intubation (74.8%), operating the defibrillator (69.9%), preparing medications and IV solutions (63.3%), operating the cardiac monitor (59.3%), and recording critical events (48.4%). The same five roles identified above were also the five desired most for role simulation education, and in the same order: assisting with intubation (84.0%), operating the defibrillator (83.1%), preparing medications and IV solutions (80.0%), and recording critical events (57.3%). Least perceived needs were identified as taking blood pressures and heart rates, placing IV lines, and CPR. Notable was 20.8% desired more classroom time with CPR plus 45.2% desired more role simulation education on CPR. The Education Need Score variable (N=105) mean was 24.4 with a SD of 4.3. Actual scores ranged from 16.0 (low need) to 32 (high need).

Table 4

Perceived Educational Needs

	Percent Need	
Role	Classroom	Role Simulation
CPR	20.8	45.2
Prepare medications and IV solutions	63.3	80.0
Recording critical events	48.4	57.3
Operation of defibrillator	69.9	83.1
Operation of heart monitor	59.3	72.6
Assist with intubation	74.8	84.0
Placing IV line	23.0	32.8
Taking B/P or HR	8.2	14.5

Missing data < 10% of sample on any one item.

Table 5.1

Importance of Role Simulation Education*

	N	%
Not necessary, waste of resources	1	0.8
Nice, if sufficient resources	6	4.7
Should be offered, but not required	19	14.8
Should be required	102	79.7

*Missing N=2.

Table 5.2

Desired Frequency of Role Simulation Education*

	N	%
Quarterly	68	54.0
Twice yearly	45	35.7
Yearly	12	9.5
Once	1	0.8
Not needed	0	0

*Missing N=4.

One hundred two nurses (79.7%) stated that role simulation should be required for all nurses. Nineteen (14.8%) thought it should be offered but not required. Fifty-four percent (N=68) desired quarterly role simulation education and 35.7% (N=45) biannually. Combined, almost 95% desire role simulation to be offered, and almost 90% desire this education at least twice yearly.

Perceptions of Performance

This section of the SAS measured the amount of perceived anxiety and anxiety-related behaviors that nurses would feel if asked to perform in an actual cardiopulmonary resuscitation at the time they filled out the Self-Assessment Survey (Table 6).

Anxiety. The anxiety scale ranged from no anxiety (zero) to extreme anxiety (100 mm). Responses ranged from zero to 100 mm with a mean of 62.4 mm and a SD of 27.4 mm.

Anxiety-related behaviors. Panic, freezing, and retreating behaviors were measured using a visual analogue scale of unlikely (zero) at one end and likely (100 mm) at the opposite end of the 100 mm line. Panic

responses ranged form zero to 94 mm with a mean of 24.2 mm and a SD of 21.5 mm. Freezing to the spot responses ranged from zero to 90 mm with a mean of 10.5 mm and a SD of 14.5 mm. Retreating from the scene responses ranged from zero to 95 mm with a mean of 11.8 mm and a SD of 17.9 mm. The Average Anxiety score was 27.2 mm with a SD of 15.9 mm.

Association of Anxiety Score and Education Need Score with Previous Experiences and Education

Pearson's correlation was used to determine the degree of relationship between Anxiety Score and Education Need Score with previous experiences and education (Table 7). An inverse relationship was revealed for each variable and all were significant except cardiac arrest education with Anxiety Score. Significant levels were at least 0.001 except for years of nursing experience with Education Need Score ($p = 0.006$) and ICU experience with Education Need Score ($p = 0.002$).

Table 6

Anxiety and Anxiety-related Behavior*

	Mean**	Standard Deviation**
Anxiety	62.4	27.4
Panic	24.2	21.5
Freeze	10.5	14.5
Retreat	11.8	17.9

*Missing data < 4% of sample on any one item.

**Measured in millimeters.

Table 7

Association of Anxiety Score and Education Need Score with Previous Experiences and Education

	Anxiety[1]	Education Need
ICU experience		
N	124	103
Coefficient	-.29*	-.28*
Probability	.001	.002
Years nursing experience		
N	126	105
Coefficient	-.27	-.24
Probability	.001	.006
Cardiac arrest education		
N	104	93
Coefficient	-.09	-.33
Probability	.182	.001
Mock arrest experience		
N	121	100
Coefficient	-.27	-.33
Probability	.001	<.001
Actual arrest experience		
N	113	98
Coefficient	-.55	-.60
Probability	<.001	<.001

[1] Anxiety Score was utilized.

* Point biserial correlations. All other statistics are Pearson's Product-Moment Correlations.

CHAPTER V

CONCLUSIONS

Review of the Problem

Each nurse is responsible and accountable for his/her performance in a cardiopulmonary resuscitation. Both ACLS certified and non-ACLS nurses must be able to participate in the arrest and be able to function as part of a team. Effective teamwork from all health care workers present during the resuscitation effort has been shown to reduce chaos (Owen et al., 1986) and increase the client's chance for survival (Eisenberg et al., 1979). Little documentation has been found in the literature regarding either the supporting roles performed by non-ACLS nurses or their anxiety levels experienced during resuscitation. The purpose of this study was to identify, by survey, the educational needs and anxiety levels plus likelihood of anxiety-related behaviors of non-ACLS nurses during a cardiopulmonary arrest.

Discussion of Findings

Findings from this study show the nurses surveyed have had a variety of educational and clinical experiences related to resuscitation. In the ten nursing roles listed in the SAS, over 70% of the nurses have had classroom education on these roles; only 50% have had hands-on (simulation) education. The percent of nurses who have practiced these roles through simulation, including mock arrest experience, ranged from 50% to 88.5% in any one nursing role. Actual arrest experience in these roles was much lower, as is expected, 21.6% to 67.2% (excluding the passive role of observer at 82.4%). The three roles with the lowest nursing participation included working with the cardiac defibrillator and monitor and intubation. These roles are usually assigned to ACLS certified personnel and, therefore, non-ACLS nurses have little actual experience performing the roles.

Perceived educational needs were identified by the sample. In general, the four nursing roles identified as having the highest need for additional training were the roles that nurses have had the least actual arrest experience. These roles included preparing medications and IV solutions, operation of the cardiac

defibrillator and monitor, and assisting with intubation. The nurses also indicated they perceive a greater need for role simulation (hands-on practice) than classroom education for each role identified. The difference in percent of training desired between classroom and role simulation for each role ranged generally from 6% to 13% except for the medication role and CPR role which differed 17% and 24% respectively. An explanation for this larger percentage difference may be explained by Fitts' skill learning proposal phase two, fixation. The learners feel they have had some cognitive knowledge but desire more practice time which is part of the fixation phase, practice until skill is learned. The lower percentage difference can be supported by phase one and two, the cognitive and fixation phase. Here the learners have identified a high need for both didactic and hands-on learning. These roles were recording critical events, operation of the cardiac defibrillator and monitor, and assisting with intubation. Placing an IV line and taking blood pressures or heart rates were identified as low need roles for both classroom and role simulation training beyond BLS. This low need possibly reflects that while nurses have had little experience during resuscitation

with these roles they have probably had much experience with these roles, during routine clinical patient care. CPR had a low classroom need (20.8%) but a higher role simulation need (45.2%).

The importance of role simulation education is not only reflected in the above findings but also in how frequently the nurses indicated they desired such education. Data from Tables 5.1 and 5.2 indicate that approximately 80% think role simulation education should be required, and another 15% of the respondents indicated this type of education should be offered but not required. Fifty-four percent of the nurses indicated this education should be provided quarterly and 35.7%, twice yearly. Combining these last two percentages, almost 90% of the nurses indicated that role simulation education is needed twice yearly or more.

Almost every nurse, when asked to rate the level of anxiety they would feel if they had to perform in a cardiac arrest at the time of the survey, revealed some level of anxiety. Only one nurse indicated no anxiety at all and several others had very low levels. These nurses, according to Fitts' model, have reached the final and third phase of learning, the autonomous

phase. This phase is described as having become knowledgeable about the skill and has practiced it until the learner's anxiety level in performing the skill is very low. Since most nurses indicated they had some anxiety helps support the importance and desired frequency requested for role simulation education. Though the nurses indicated they would feel anxious performing in a cardiac arrest, they did not indicate or perceive they would necessarily act out in anxiety-related behaviors. The anxiety-related behaviors of panicking, freezing, and retreating have been associated with chaos during resuscitation. It is possible the nurses may have underrated the likelihood of such behaviors since these actions are not considered socially desirable.

The importance of and frequency desired for role simulation education reflect and reinforce the educational need desired by the nurses. These data help support Fitts' learning skill model and Knowles' adult learning theory indicating nurses need continuing education in certain roles, and the roles requiring training (and retraining) may vary with time as nurses become more comfortable with these roles and experience less anxiety in performing these roles.

This final area of discussion will look at whether there was an association between Anxiety Score and Education Need Score with previous experience and education. The findings do indicate several significant inverse relationships. Anxiety levels and the requirement for additional education both declined as the nurse gained years of nursing experience and also as he/she participated in more mock and actual arrests. Nurses with ICU experience also had lower anxiety and fewer educational needs.

All these experiences influence the nurses, anxiety levels; more clinical experience means less anxiety perceived. This observation supports Fitts' model. With increased experience (whether cognitive, hands-on, or the lived-experience in an actual arrest) the learner's level of anxiety is lowered.

Conclusions and Implications of the Findings

1. Non-ACLS nurses do have educational needs and want to further their knowledge of nursing cardiopulmonary resuscitation roles through additional education. This education includes both classroom didactic and hands-on experience at least twice a year.

2. Nurses do experience anxiety performing in cardiac resuscitations, but the anxiety level is not related to the likelihood of anxiety-related behavior that could interfere with adequate role performance.

3. Anxiety levels and the need for education decrease as the nurses' years of experience increase and also as they participate in more actual arrests and mock arrests.

4. Since frequent mock arrest experience lowers anxiety and since approximately 90% of the nurses surveyed request twice annual resuscitation role simulation education, this suggests that nurses sincerely desire the chance for such training and, therefore, should be offered the education.

5. The frequency of similar role training they now receive was not identified by this survey, but looking at the mean number of mock arrests participated in and the mean number of years of nursing experience suggests training less than or equal to once yearly for nurses.

6. Some nurses have never participated in either mock arrests (18.4%) or actual arrests (23.6%).

7. Almost 50% of the nurses indicated they need more hands-on practice with BLS.

8. This survey identified learning needs and anxiety levels of non-ACLS nurses working in Air Force hospitals. These needs (emergency medications, and operation of the cardiac monitor and defibrillator) were also identified in studies by Mishkin et al. (1982) and Owen et al. (1986).

9. Not every nurse is ACLS certified and not every hospital has a designated resuscitation team to respond to cardiac arrests. Chances are very high that a non-ACLS nurse may be the one to respond to or find the arrest.

Recommendations for Future Research

Recommendations for future studies include developing a role simulation class around the identified needs and evaluating the results of the class through pretests, post tests, and measurements of anxiety. This would allow researchers to determine if additional training, as desired by the learners, actually lowers the anxiety and stress experienced in an actual cardiac arrest. Additions to this survey (SAS) could include how frequently the nurses receive education in nursing resuscitation roles currently, and whether they perceive they could perform adequately in

a cardiac resuscitation effort at the time they completed the SAS.

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APPENDIX A

CHIEF NURSE LETTER

To Chief Nurse or Survev Designee 15 Oct 88

Captain Paula L. Pengilly
860 Clermont St. Apt. 308
Denver, CO 80220
(303) 355-8318

Your hospital has been selected to participate in a study to assist me with the completion of a thesis. Approval to distribute surveys among the nurses at your facility has been obtained and you are being asked to help administer the surveys. The purpose of this study is to identify the educational needs of nurses in Air Force hospitals to perform during a cardiopulmonary arrest. The survey (sample enclosed) will collect data in five sections: previous cardiac arrest experience, educational needs, perceived ability to perform and whether they perceive role rehearsal training will enhance their ability, perceived stress/anxiety levels, and general information regarding the survey participants.

I would appreciate your help in distributing the survey to qualified AFSC 9756 nurses meeting these criteria: they must not be ACLS certified, they must not work in a clinic, and their duties must include patient care or they are responsible for responding to and assisting with cardiopulmonary arrests. Request you distribute surveys to nurses in a variety of clinical areas and to nurses working each different shift. It is possible that charge nurses could be selected as long as they fit the required criteria in sentence one. Each participant selected by you should receive a packet containing a cover letter explaining the survey purpose along with the required consent and confidentiality statements, the survey, and return envelope. Please collect the completed surveys and return them in the postage paid packet by 2 Nov 88.

Thank you for your cooperation, time, and assistance. If you have questions or would like a copy of the study results, please write to the address above. I will contact you within two weeks of the study to evaluate the response rate. Thank you.

Paula L. Pengilly

Paula L. Pengilly, Captain, USAF, NC

APPENDIX B

PARTICIPANT COVER LETTER

USAF SCN 88-84
EXP 31 Dec 88

SELF-ASSESSMENT SURVEY REGARDING PREVIOUS CARDIOPULMONARY ARREST EXPERIENCE AND EDUCATIONAL NEEDS

Dear Nursing Colleague,

I am a masters student at the University of Colorado Health Science Center School of Nursing in Denver completing a thesis regarding nurses' cardiopulmonary arrest experiences and their educational needs. The purpose of this survey is to identify the educational needs of nurses in Air Force hospitals who are not certified in advanced cardiac life support (ACLS), and to assess their perceptions regarding their performance during a cardiopulmonary arrest.

You, as a nurse not certified in ACLS, are being asked to complete a 36 item survey that takes less than 15 minutes. Please pass the survey to another nurse if you are ACLS certified. Participation is voluntary. Your identity will be kept anonymous (no name or SSN is requested). Your answers are confidential but the data collected may be published as group responses. Please answer all questions by circling your response, filling in numbers, or marking the scales as directed. Return the completed survey in the envelope provided to the individual who distributed the survey to you by 2 NOVEMBER 1988.

I realize your time is valuable but I believe this study will benefit all who have or will participate in a cardiopulmonary arrest. Because all nurses are responsible and accountable for their actions, we need appropriate educational opportunities. Your responses are important! Thank you.

Completion of this survey indicates your consent to participate in this study. If you have any questions or desire a copy of the results, contact me at: 860 Clermont St. Apt. 308, Denver, CO 80220. (303) 355-8318

Paula L. Pengilly

Paula L. Pengilly, Captain, USAF, NC

****

General Information

1. Does your hospital have a cardiac resuscitation team that responds to all in-hospital arrests?
   a. yes b. no

2. Highest educational level you have obtained:
   a. diploma
   b. associate degree
   c. baccalaureate
   d. masters degree or higher

APPENDIX C

SELF-ASSESSMENT SURVEY

USAF SCN 88-84
EXP 31 Dec 88

SELF-ASSESSMENT SURVEY REGARDING PREVIOUS CARDIOPULMONARY ARREST EXPERIENCE AND EDUCATIONAL NEEDS

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You, as a nurse not certified in ACLS, are being asked to complete a 36 item survey that takes less than 15 minutes. Please pass the survey to another nurse if you are ACLS certified. Participation is voluntary. Your identity will be kept anonymous (no name or SSN is requested). Your answers are confidential but the data collected may be published as group responses. Please answer all questions by circling your response, filling in numbers, or marking the scales as directed. Return the completed survey in the envelope provided to the individual who distributed the survey to you by 2 NOVEMBER 1988.

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Paula L. Pengilly

Paula L. Pengilly, Captain, USAF, NC

****

General Information

1. Does your hospital have a cardiac resuscitation team that responds to all in-hospital arrests?
   a. yes b. no

2. Highest educational level you have obtai
   a. diploma
   b. associate degree
   c. baccalaureate
   d. masters degree or higher

3. Type of unit currently employed:
   a. medical and/or surgical
   b. pediatrics
   c. OB/GYN/Nursery
   d. other (list)_____

4. Position:
   a. staff nurse
   b. assistant charge/charge nurse
   c. assistant supervisor/supervisor
   d. other (list)_____

5. Shift worked:
   a. day
   b. evening
   c. night
   d. day-night
   e. day-evening
   f. evening-night
   g. day-evening-night

6. Total years as a registered nurse: _____ years

7. Gender: a. female b. male

Cardiac Arrest Experience

For each role listed below, circle Y (yes) or N (no) in each column to describe the ways you learned to perform the role: from classroom presentation, simulated experience, and/or actual experience.
Classroom = lectures, slides, etc. other than hands-on experience
Simulated = performed the role as part of role playing in a staged arrest; hands-on experience
Actual = performed role in a real cardiopulmonary arrest

Role	Classroom		Simulated		Actual	
1. Initiate CPR	Y	N	Y	N	Y	N
2. Medication nurse	Y	N	Y	N	Y	N
3. Record critical events	Y	N	Y	N	Y	N
4. Prepare defibrillator	Y	N	Y	N	Y	N
5. Prepare cardiac monitor	Y	N	Y	N	Y	N
6. Prepare intubation equipment	Y	N	Y	N	Y	N
7. Place IV line	Y	N	Y	N	Y	N
8. Assist with CPR	Y	N	Y	N	Y	N
9. Take B/P and heart rate	Y	N	Y	N	Y	N
10. Observer	Y	N	Y	N	Y	N

11. Do you have current or previous ICU/CCU experience?
    a. yes b. no

12. How many simulated cardiopulmonary arrests (mock codes) have you participated in? _____ (If zero, skip to item 13)

13. How many months and/or years since the most recent simulation or mock code you participated in? _____ years _____ months

14. How many actual resuscitations have you participated in? _____ (If zero, skip to Educational Needs section)

15. How many months and/or years since the most recent actual cardiopulmonary arrest you participated in?
_____ years _____ months

Educational Needs

Circle Y (yes) or N (no) to indicate whether you think you need additional classroom and/or simulation educational experience to perform adequately each of the roles in a cardiopulmonary arrest listed below.

	Role	Classroom		Role Simulation	
1.	CPR	Y	N	Y	N
2.	Prepare medications and IV solutions without delay	Y	N	Y	N
3.	Recording critical events	Y	N	Y	N
4.	Operation of defibrillator	Y	N	Y	N
5.	Operation of cardiac monitor	Y	N	Y	N
6.	Assist with intubation	Y	N	Y	N
7.	Placing IV lines	Y	N	Y	N
8.	Taking B/Ps or heart rates	Y	N	Y	N

9. How important do you think it is to provide role rehearsal simulation of cardiopulmonary arrests (that is, hands-on experience) for non-ACLS nurses in hospitals? (Circle one closest to your opinion)
   a. not necessary; a waste of time and resources
   b. nice, if there are sufficient resources
   c. should be offered at every hospital, but not required
   d. should be required for all nurses

10. How often would you need role rehearsal training to maintain adequate role performance in an actual arrest?
   a. quarterly
   b. twice yearly
   c. yearly
   d. once
   e. not needed

Perceptions of Performance

Directions: **Each of the items in this section is followed by a horizontal line with opposite statements on each end. Read each question carefully, then place a mark on the line to indicate where your answer falls between the two extremes. For example, if the question was "How important is it for nurses to know CPR?", the mark below would indicate you felt it was fairly important, but not totally important.**

Not Important ----------|--------- Important

1. How much anxiety would you have if you had to participate in a cardiopulmonary arrest right now?

No Anxiety ---------- Extreme Anxiety

Based on your past experience or anticipated participation in a cardiopulmonary arrest, what is the likelihood you would:

2. panic (ie., hands shake so as unable to drawup and/or deliver medication rapidly or forget everything you know)?

Unlikely ---------- Likely

3. freeze on the spot (ie. unable to move before and/or after calling for help)?

Unlikely ---------- Likely

4. retreat (ie. avoid arrest scene by finding things to do in another room)?

Unlikely ---------- Likely

End of Survey

Thank you very much for participating in this survey. Direct questions to the investigator listed on page one or to the individual who delivered the survey at your hospital.

Please return completed survey in the envelope provided to the individual who distributed the survey to you by 2 NOVEMBER 1988.

APPENDIX D

AIR FORCE INSTITUTE OF TECHNOLOGY APPROVAL

FROM: AFIT/XPX

26 JUL 1988

SUBJECT: Survey Approval

TO: CIMI (Capt Goetz) (Capt Pengilly)

1. Review of Captain Pengilly's proposed survey, "Abstract: Non-ACLS Nurses' Supporting Roles During Cardiac Arrest: What is the Need For Education," has been completed by this office and Mr. Charles H. Hamilton, AFMPC/DPMYOS, and is approved provided changes are made and a copy of the final survey is submitted.

2. The assigned USAF SCN of 88-84 and expiration date of 31 Dec 88 should be displayed on the cover letter or the top right corner of each survey booklet. If you have any questions, please contact me at ext. 55760.

Kimberly D. Frisco

KIMBERLY D. FRISCO, 2d Lt, USAF
Asst Chief, Evaluation and Technology

1 Atch
Necessary Changes

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MILITARY PERSONNEL CENTER
RANDOLPH AIR FORCE BASE TX 78150-6001

REPLY TO ATTN OF: DPMYOS

SUBJECT: Request of Survey Approval (Your Ltr, 8 Jul 88)

TO: AFIT/XP

1. Captain Pengilly's proposed survey has been reviewed by this office and by the HQ AFMPC Surgeon's office. The following contingencies for approval are cited for action:

a. The chief nurses or their designees at Air Force hospitals are authorized to assist Captain Pengilly in survey administration; however, the sample size must be cut from 600 to 200 nurses.

b. At Attachment 1, cover letter for chief nurses/ designees, recommended changes are identified. Changes modify the overall tone of the letter and clarify administration instructions.

c. At Attachment 2, cover letter for participants, recommended changes are identified to clarify administration instructions.

d. At Attachment 3, the survey, changes are identified to make the instrument more technically viable. These changes must be made.

2. Please provide us a copy of the final survey and letters for our files. A survey control number of USAF SCN 88-84 is assigned and expires on 31 December 1988. Questions regarding this action can be directed to me at AUTOVON 487-5680/2265.

FOR THE COMMANDER

CHARLES H. HAMILTON, GM-13
Chief, Personnel Survey Branch

3 Atch
1. Admin Ltr
2. Participant Ltr
3. Survey

Prepared by the Military Institute

APPENDIX E

UCHSC HUMAN SUBJECT COMMITTEE APPROVAL

University of Colorado Health Sciences Center

Office of the Dean School of Medicine

Campus Box C 290
4200 East Ninth Avenue
Denver, Colorado 80262
(303) 394-7565

HUMAN SUBJECT COMMITTEE

To: Dr. Ginnette Pepper Date: June 30, 1988

From: Human Subjects Committee

Your application entitled Non-ACLS Nurses' Supporting Roles During Cardiac Arrest: What is the Need for Education EXEMPT

has been unanimously approved by the Human Subject Committee as of 6/24/88 The Committee will require a follow-up on the status of this project 12 months from the date of approval. We shall send you a form to complete to define the status of your project.

The investigator bears the responsibility for obtaining from all patients and subjects "Informed Consent" as approved by the Committee.

It is also your responsibility to inform the Committee immediately of any deaths, serious complications or other untoward effects of this research.

Please notify the Committee if you intend to change the experimental design in any way.

As of July 1, 1983 the Human Subject Committee REQUIRES that the subject be given a copy of the consent form which includes the name and telephone number of the investigator.

Any questions about the Committee's action on this project should be referred to the Secretary, Mary Jane Peratt (Ext. 7960 or Mail Container B-163).

John T. Reeves

John T. Reeves
Chairman
Human Subject Committee

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